

# ENGINEERING HERITAGE RECOGNITION PROGRAM

## PROPOSAL TO NOMINATE AN ITEM OF INTEREST

### Dexter Horizontal Windmill



*Dexter Horizontal Windmill – relocated and restored in Urana, NSW.(photo by Chris Dahlitz)*

<b>Item Name:</b>	Dexter Horizontal Windmill
<b>Other/Former Names:</b>	Dexter Horizontal Turbine, Dexter Horizontal Wind Turbine
<b>Locality:</b>	Urana, NSW
<b>Address:</b>	Federation Way, Urana (opposite the Aquatic Centre on the Southern edge of the township.)
<b>Co-ordinates</b>	Lat. -35.3374043, Long. 146.2722478
<b>Current Owner:</b>	Federation Council
<b>Original Owner:</b>	Sir Samuel McCaughey (famous Pastoralist and pioneer of the MIA)
<b>Current use:</b>	Tourist attraction
<b>Former use:</b>	Water pumping at 'Coonong' Station, West of Urana

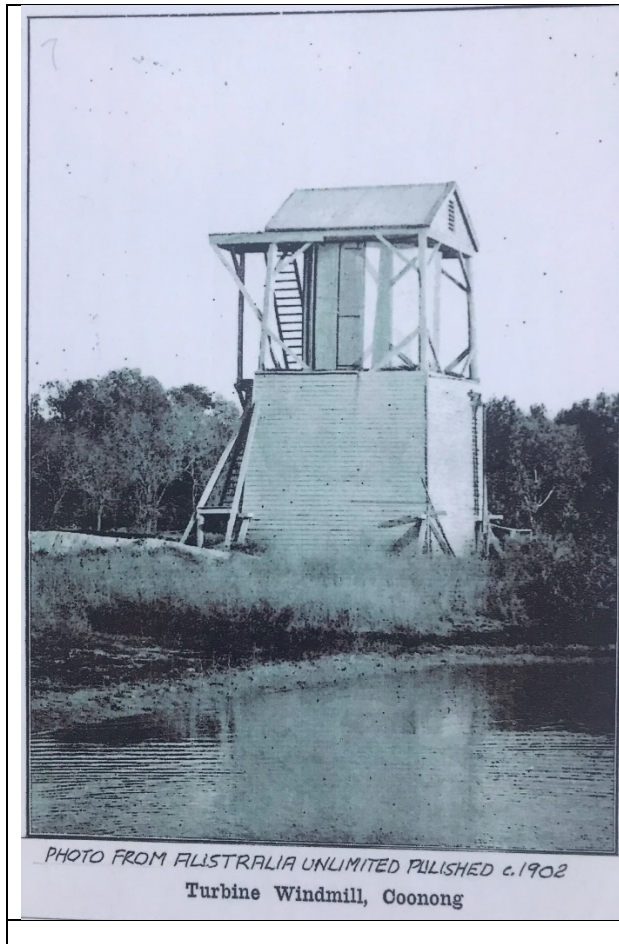
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<b>Proposed use:</b>	Tourist attraction		
<b>Item Condition:</b>	Excellent – fully rebuilt and restored over many years commencing 1999. Officially opened to the public at a ceremony held on 21 <sup>st</sup> June 2023.		
<b>Designer:</b>	Original – Albert H. Southwick, Oskaloosa, Iowa (USA)- Patent March 31, 1868		
<b>Builder:</b>	Original – Albert H. Southwick (USA)- circa 1880 Restoration – (1999 to 2023) architect Ken Young, engineer Ron Young and windmill mechanic Tim Matt		
<b>Started:</b>	1885	<b>Restoration Completed:</b>	2023
<b>History:</b>	<p>The Dexter Horizontal Windmill was designed by Albert H. Southwick of Oskaloosa, Iowa (USA) who registered his patent on 31<sup>st</sup> March 1868. In a second patent of 1875, Albert made improvements to the shutter system. In around 1885, Sir Samuel McCaughey imported a Dexter kit and erected it on 'Coonong' Station to the west of Urana. It is believed Sir Samuel made further modifications to the 1875 design, and it was used to pump water.</p> <p>The Dexter stood for over 100 years at 'Coonong' before being seriously damaged in a bushfire in the 1990's.</p> <p>In 1999, the current owners of 'Coonong' Station – the Holt family – gifted the remnants of the Dexter to the Urana Progress Association, and a small team of enthusiasts led by architect Ken Young (Albury), engineer Ron Young (no relation) and windmill mechanic Tim Matt, commenced a reconstruction project. Geoff Harrison of DG Harrison and Sons at Hay provided the working space and staff expertise to rebuild the Dexter before it was transported to Urana for its final re-erection opposite the Aquatic Reserve on Federation Way. The restoration was assisted by funding from the NSW Government's Regional Cultural Fund, the community, and the Federation Council.</p> <p>The reconstructed Dexter Horizontal Windmill was officially opened to the public in a ceremony held on a cold and foggy winter morning of 21 June 2023.</p>		
<b>Description:</b>	<p>Horizontal Windmills are relatively rare in the Western World and generally small in diameter and height. The blades are mounted in a drum shape that turns on a vertical axis rather than a horizontal hub like that of a propeller.</p> <p>The restored Dexter Horizontal Windmill is 9.1 metres high standing on a 5.4 metre square base. The drum turbine or rotor is 3.7 metres tall and just over three metres in diameter, and is housed in the upper storey of the structure exposed to the wind. The rotor assembly consists of an inner circle of fixed vanes surrounded by an outer circle of pivoting shutters that move by a system of rods to optimize the angle to the wind.</p> <p>The central rotating shaft extends to the lower storey with gearing attached where it can be used for a variety of purposes – in this case water pumping, The lower storey of the Windmill is clad in cypress pine boards.</p>		
<b>Engineering Significance:</b>	Because of their size and weight, and hence difficulty to transport (even as a disassembled kit), very few Dexter's were built. Only four were brought to Australia.		

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	<p>The Dexter uses a novel arrangement of an inner fixed circle of vanes surrounded by an outer circle of pivoting shutters operated by rods to optimize capture of the wind.</p> <p>The Urana Dexter Horizontal Windmill is extremely rare and is believed to be the only surviving example worldwide.</p> <p>A Gladden Horizontal Windmill (patent 1888) - similar and even larger than the Dexter, is stored in a dismantled condition at Conewango, New York (USA); it originally stood at Pigeon Valley Road, Napoli, New York.</p>		
<b>Webpage Summary:</b>	<p>Horizontal Windmills have vanes that are mounted in a drum shape that turns on a vertical axis rather than on a horizontal hub like a propeller. They are relatively rare in the Western World and generally small in diameter and height.</p> <p>In 1868, Albert H. Southwick of Oskaloosa, Iowa (USA) patented his design which became known as the Dexter Horizontal Windmill.</p> <p>Then around 1885, Sir Samuel McCaughey (famous pastoralist, politician and pioneer of the Murrumbidgee Irrigation Area) imported a Dexter kit and erected the windmill on 'Coonong' Station, to the west of Urana.</p> <p>The Dexter stood for over 100 years at 'Coonong' before being seriously damaged in a bushfire in the 1990's.</p> <p>In 1999 the current owners of 'Coonong' Station – the Holt family – gifted the remnants of the Dexter to the Urana Progress Association, and a small team of enthusiasts commenced its reconstruction. Eventually, the restored windmill was transported to Urana for re-erection opposite the Aquatic Reserve on Federation Way. It was officially opened to the Public in a ceremony on the morning of 21 June 2023.</p> <p>The upper storey of the Dexter houses the rotor that consists of a novel arrangement of an inner fixed circle of vanes surrounded by an outer circle of pivoting shutters operated by rods to optimize capture of the wind.</p> <p>Only four Dexters were brought to Australia. The Urana Dexter Horizontal Windmill is extremely rare, and is believed to be the only surviving example worldwide.</p>		
<b>Engineering Theme:</b>	Primary Industry, Farms & Stations, Windmills		
<b>Heritage Listing:</b>	None		
<b>References:</b>	<ul style="list-style-type: none"> <li>Federation Council – Opening Ceremony Invitation</li> <li>Interpretive signage erected at the site.</li> <li><a href="https://en.wikipedia.org/wiki/Gladden_Windmill">https://en.wikipedia.org/wiki/Gladden_Windmill</a></li> <li><a href="https://www.oleantimesherald.com/news/gladden-windmill-a-former-napoli-treasure/article_f1769d27-6b3b-5dce-aedb-b8177868ea42.html">https://www.oleantimesherald.com/news/gladden-windmill-a-former-napoli-treasure/article_f1769d27-6b3b-5dce-aedb-b8177868ea42.html</a></li> </ul>		
<b>Nominated by:</b>	Chris Dahlitz		
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<b>EHA Branch Chair:</b>	Sydney	<b>Approval Date:</b>	

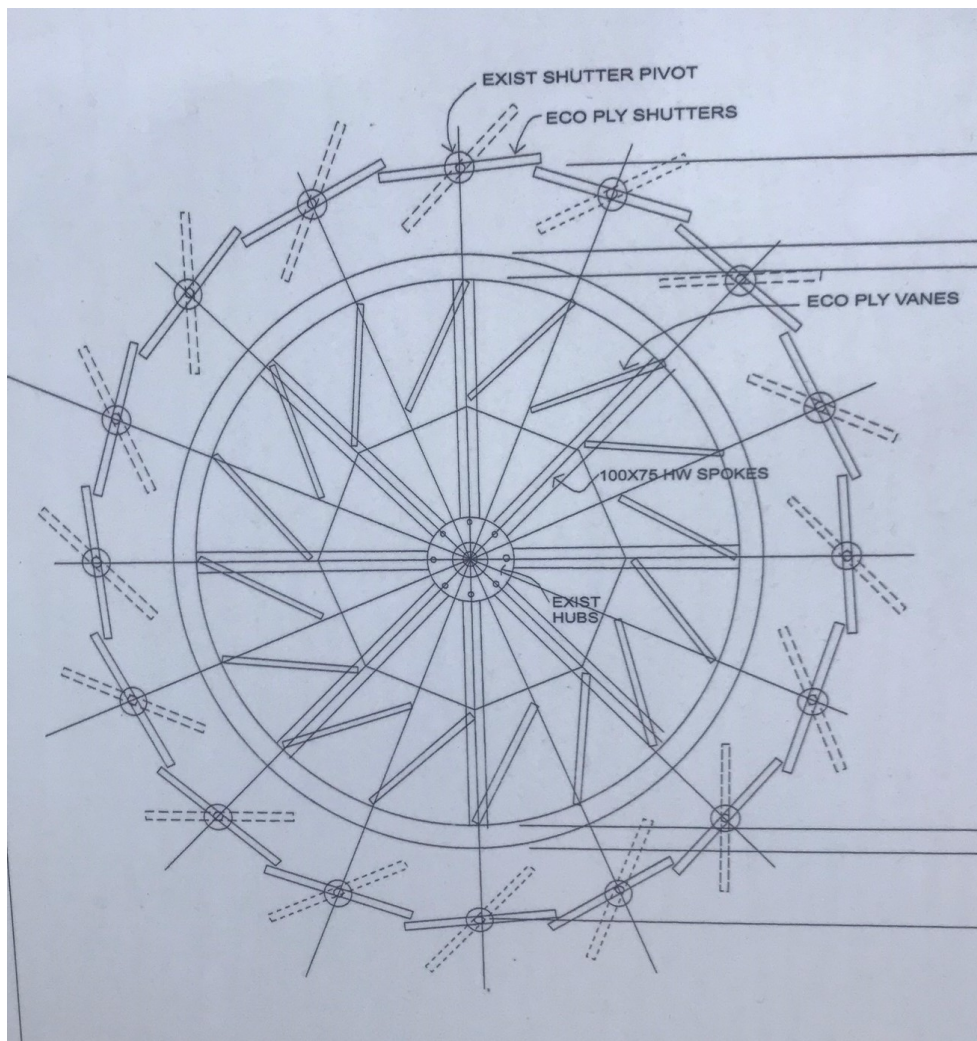
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*Historical Photos of the Original Dexter at 'Coonong' (Photos from the on site panel)*



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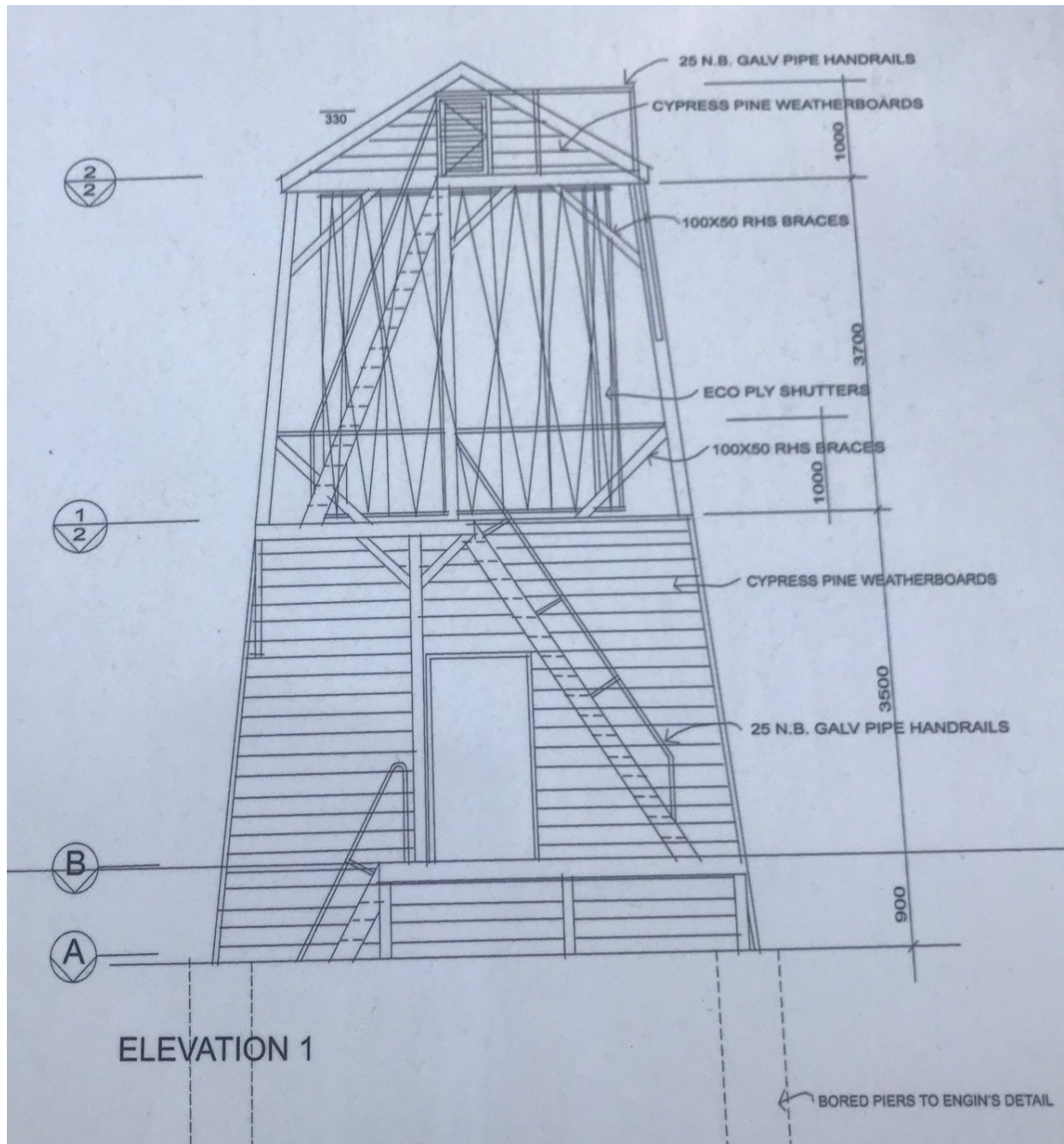


*Engineering Drawing produced by Ken Young for the Restoration of the shutters – Photo from the on-site panel*



*Photo showing the inner fixed vanes and outer pivoting shutters – Photo by Chris Dahlitz*

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*Front Elevation Drawing produced by Ken Young for the Restoration – Photo from the on-site panel.*



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*Official Opening Ceremony of the Reconstructed Dexter, June 21 2023 - (photo by Chris Dahlitz)*